WHAT IS CLAIMED IS:

1. A retractable thruster for a surface or submersible vessel, the thruster comprising a propulsion assembly comprising a rigid structure secured to a cylindrical turbine, said rigid structure containing or being suitable for containing a motor, said motor being suitable for rotating at least one propeller inside said turbine via at least one rotary shaft between said motor and said propeller, and preferably further comprising a plate for closing the hull placed beneath said turbine and secured thereto, said propulsion assembly being displaceable by displacement means between a retracted position in which it is at rest inside the hull and a deployed position for providing propulsion in which the propeller is immersed beneath the hull, wherein said displacement means enable said propulsion assembly to be moved between said retracted and deployed positions by said propulsion assembly performing uniform circular movement about an axis of rotation situated substantially at the level of said hull or beneath said hull.

2. A thruster according to claim 1, wherein said displacement means comprise guide elements suitable for co-operating with said propulsion assembly to enable said propulsion assembly to be moved between said retracted and deployed positions by said propulsion assembly describing said uniform circular movement about said axis of rotation situated substantially level with said hull or beneath said hull, said uniform circular movement being determined by the shape of said guide elements.

3. A thruster according to claim 2, wherein said guide elements comprise at least one moving first guide element secured to said propulsion assembly describing the same uniform circular movement as said propulsion assembly and suitable for co-operating with at least one stationary second guide elements secured to said hull, said uniform

circular movement being imposed by the shape of said guide elements, said first and second guide elements co-operating by displacement of said first guide element relative to said second guide element in order to enable said propulsion assembly to be moved between said retracted and deployed positions.

4. A thruster according to claim 3, wherein said moving first guide element is constituted by a male part forming a slider and secured to said propulsion assembly, and said second guide element is constituted by a female part forming a slideway, said slideway forming a circular arc enabling said first guide element to describe said circular movement inside said second guide element.

5. A thruster according to claim 3, wherein said moving first guide element secured to said propulsion assembly is constituted by a slideway-forming female part and said second guide element is constituted by a slider-forming male part, said slideway forming a circular arc enabling said second guide element to describe said circular movement inside said first guide element.

6. A thruster according to claim 2, wherein said guide elements comprise a plurality of said first and second guide elements, disposed laterally on either side of said propulsion assembly on either side of a vertical plane containing the longitudinal axis of said rigid structure containing said rotary shaft extending between said motor and said turbine.

7. A thruster according to claim 1, wherein said propulsion assembly is included in part inside a caisson and is secured thereto, said caisson being fitted on the top edge of a well, itself fitted inside said hull and having its base surrounding said opening in said hull.

By Express Mail
No. EV 528957360 US

8. A thruster according to claim 7, wherein said propulsion assembly is inclined in such a manner that a plane containing the longitudinal axis of said rigid structure containing said rotary shaft is inclined in the retracted position relative to the longitudinal direction XX' of the surface vessel and/or relative to the junction plane between said caisson and said well at an angle α of value lying in the range 10° to 60°, preferably in the range 10° to 30°, and is inclined in the deployed position relative to the same longitudinal direction XX' of the surface vessel and/or relative to the junction plane between said caisson and said well at an angle β of value lying in the range 45° to 100°, and preferably in the range 60° to 90°.

9. A thruster according to claim 3, wherein said second guide element(s) is/are included in or associated with one or more plates mounted in stationary manner on a side wall of said caisson, or on opposite side walls of said caisson.

10. A thruster according to claim 2, wherein said first guide elements comprise at least three male parts, preferably three sliders disposed in a triangle, symmetrically on either side of said propulsion assembly so as to co-operate respectively with at least two slideway-forming female parts defining concentric circular arcs that are geometrically similar and disposed symmetrically on either side of said propulsion assembly, at least two of said male parts, preferably said sliders, being suitable for sliding inside a first slideway of greater radius and at least one third male part, preferably a third slider, being suitable for sliding inside at least one second slideway of smaller radius.

11. A thruster according to claim 1, wherein said guide elements co-operate with drive means enabling said

circular movement of the propulsion assembly relative to the hull to be generated.

12. A thruster according to claim 3, wherein said first guide elements comprise at least three male parts, preferably three sliders disposed in a triangle, symmetrically on either side of said propulsion assembly so as to co-operate respectively with at least two slideway-forming female parts defining concentric circular arcs that are geometrically similar and disposed symmetrically on either side of said propulsion assembly, at least two of said male parts, preferably said sliders, being suitable for sliding inside a first slideway of greater radius and at least one third male part, preferably a third slider, being suitable for sliding inside at least one second slideway of smaller radius, and wherein said first or second guide element is turned relative to said second or first guide element in a said circular movement by a motor co-operating, where appropriate, with said first or said second guide element via link elements in such a manner as to enable said propulsion assembly to be blocked in the retracted position or in the deployed position, where appropriate.

13. A thruster according to claim 1, wherein said rigid structure comprises a structure in the form of a rectangular parallelepiped providing a leaktight connection firstly with a cover covering said motor, and secondly with said turbine, said first guide elements being mounted against opposite side faces of said rectangular structure.